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The Lunar Science Institute

Semi-Annual Status Report

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for the period

15 July 1973 - 31 December 1973

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Universities Space Research Association
Post Office Box 5127
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Respectfully submitted,

February 5, 1974

Date



A. R. Kuhlthau, President

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A - Contributions of the Lunar Science Institute

I. Introduction

This report covers the scientific and administrative activities at the Lunar Science Institute during the period 15 July through 31 December 1973.

During this period, the LSI has been under the leadership of two interim directors: Dr. David Strangway for the period 15 July through 31 August, and Dr. James Head since 1 September. The technical portions of this report were assembled from material prepared by them.

The Universities Space Research Association is a consortium consisting presently of 53 member universities from the U. S. and Canada. It was organized in 1969 "to constitute an entity in and by means of which universities and other research organizations may cooperate with one another, with the Government of the United States, and with other organizations toward the development of and knowledge associated with space science and technology" through research, development, and educational activities. The Lunar Science Institute is one of the major facilities which it operates under contract to NASA.

II. Staff

In addition to the interim directors, the following individuals were in residence during the period of this report:

A. Staff Scientists

1. Dr. Robert T. Brinkmann - Planetary atmospheres and their evolution, astronomy of satellites of the planets; space probe ultra violet measurements; laboratory photon and electron spectroscopy.
2. Dr. David R. Criswell - Theoretical modeling of moon/solar-wind interaction; electrostatic transport of lunar dust.
3. Dr. Wulf Gose - Magnetic properties of igneous and sedimentary rocks; paleomagnetism; Mossbauer spectroscopy.
4. Dr. W. I. Ridley (through 31 September) - Microscope analysis of mineral phases in lunar rocks and soils; mass spectrometric analysis of rare-earth and alkali elements in lunar rocks, fines, and soils.
5. Dr. Charles H. Simonds (effective 1 October) - Rates and mechanisms of recrystallization of some specific silicate aggregates.

B. Visiting Scientists

1. Dr. J. A. Bastin, Queen Mary College, University of London (through September) - Study thermal aspects of the formation of the maria and in particular to investigate the possibility that they have developed as a result of thermal instabilities in the outer layers of the original lunar surface; to produce an axially symmetric model for such an instability and also to survey the relevant observational data together with other possible mechanisms for maria formation.
2. Dr. Gordon M. Biggar, University of Edinburg, Scotland (November only) - $\text{Eu}^{2+}/\text{Eu}^{3+}$ equilibria in silicate liquids.
3. Dr. J. W. Chamberlain, Rice University, Houston (beginning October) - The formation of coupled lines in a planetary atmosphere.
4. Dr. J. A. Hamed, Arya-Mehr University of Technology, Tehran, Iran (August - September) Determination of the lunar surface topography at mare sites and their geophysical interpretation; density distribution inside the moon; and free oscillations of the moon.

5. Dr. A. G. Hermann, Geochemisches Institut der Universität, Göttingen, Germany (beginning October) – Determination of the distribution of REE and other trace elements in special earth rocks (e.g. greenstones, amphibolites) with methods of neutron activation.
6. Dr. Petr Jakes, Geological Survey, Hradebni 9, Praha 1, Czechoslovakia (beginning November) – Participate in the soil survey work dealing with the compositional evolution of lunar regolith.
7. Dr. John F. Lindsay, Department of Geology, La Trobe University, Bundoora, Victoria, Australia (beginning December) – Complete grain size and shape work on Apollo 16 and 17 samples using particle counting equipment at JSC.
8. Miss Barbara Middlehurst, Encyclopedia Britannica, Chicago, Illinois – Investigation of seismic effects on the Moon and lunar crater forms.
9. Dr. Donald Rehfuss, California State University, San Diego (through November) – Returned to LSI to use PDP-11 computer in connection with research on "Glass Production Differences for Equal-Diameter Impact Craters" and "Hypervelocity Impact Heating of Porous Aluminum."

10. Dr. Eberhard Schneider, Max-Planck-Institut für Kernphysik, Germany - Micro-crater studies on lunar rock surfaces.

11. Dr. Stuart R. Taylor, the Australian National University, Australia (beginning September) - Prepare a synthesis and review of geochemical aspects of the Apollo lunar science program.

C. Visiting Post Doctoral Fellows

1. Dr. Russell B. Merrill, Ph.D. 1973, University of Chicago - Study possible origins of lunar highland basalts, using experimental petrological techniques.

2. Dr. Charles H. Simonds, Ph.D. 1971, University of Illinois (through September) - Rates and mechanisms of recrystallization of some specific silicate aggregates.

3. Dr. Joseph Smyth, Ph.D. 1970, University of Chicago - High temperature crystal chemistry of the pyroxene, olivine, and feldspar mineral groups: refinement of the crystal structures of two olivines and ortho, proto, and high and low clino pyroxenes at elevated temperatures; reaction kinetics and mechanisms of transitions between the polymorphs of enstatite.

4. Dr. Raymond Watts, Ph.D. 1972, University of Toronto - Electromagnetic exploration; electrical properties and electrical structure of the Moon.

D. Visiting Graduate Fellows

1. Mr. Colin Donaldson, University of St. Andrews, Scotland – An extension of geological and geochemical training towards a post-graduate degree concerned with a study of vectorial mineral growths, particularly of macrocrystalline ["harristic" or "crescumulus"] olivines from the layered ultrabasic intrusion of Rhum, Scotland, but also from the "quench peridotite" or "spinifex" rocks from the Archaean of Canada, South Africa and Australia. (This study has relevance to the origin of lunar samples 12009 which has olivine textures with similarities to the two terrestrial examples being studied.)

2. Mr. Howard Sharpe, University of Toronto, Ontario, Canada (August – September) (Student of Dr. David Strangway.) – Evolutionary models of the Moon with particular emphasis on density, moment of inertia and thermal constraints; convection in the Moon; photogeologic interpretations.

E. Visiting Scientists – Outstanding Appointments At end of Period

1. Mr. Rex Gibbons, (Cal Tech) Wesleyville, Newfoundland, Canada – Visiting Scientist for approximately one month beginning in January, 1974. – Study of shock induced crystal

lattice defects and how they contribute to overall thermoluminescence behavior of lunar materials and at what pressures olivine melts.

2. Dr. Charles E. Bickel, California State University, San Francisco, California - Visiting Scientist for approximately one week beginning January 7 - 11, 1974. Petrographic Study of Igneous and Metamorphic Rocks and to study the lunar samples with J. Warner and W. Phinney at JSC.

3. Professor Bruno J. Giletti, Brown University, Providence, Rhode Island - Visiting Scientist for approximately two weeks beginning in January 1974. Continue work at the Johnson Space Center in collaboration with Dr. Charles Meyer on Ion Microprobe Studies of Diffusive Transport of Ions in Silicates.

III. Lectures and Colloquia Sponsored by LSI

1. July 4, 1973: Dr. Mike Rhodes, JSC, "Chemical Diversity of Basalts from the Mid-Atlantic Ridge at 45° N."
2. July 13, 1973: Dr. Fred Horz, JSC, "What We Don't Know about the Lunar Regolith."
3. July 20, 1973: Dr. John Bastin, LSI, "The Viscosity of Lunar Rock."
4. August 3, 1973: Dr. Palmer Dyal, "Internal Lunar Properties from Magnetometer Measurements."

5. August 17, 1973: Dr. Donald Rehfuss, LSI
"Thermodynamic Models of Lunar Meteorite Impact."
6. August 31, 1973: Dr. Joseph Smyth, LSI,
"Crystal Structure of Armalcolites from Apollo 17."
7. September 7, 1973: Dr. S. R. Taylor, LSI,
"Trace Element Chemistry of the Lunar Highlands."
8. September 28, 1973: Dr. Robin Brett, JSC,
"The Lunar Crust: A Product of Heterogeneous
Accretion or Differentiation of a Homogeneous Moon."
9. October 5, 1973: Dr. Fred Horz, JSC, "The
Emplacement of the Cayley Formation."
10. October 26, 1973: Dr. Gordon Biggar, LSI
"Were Experimental Petrologists Incapable of
Remelting Lunar Samples?"
11. November 2, 1973: Dr. Eberhard Schneider,
LSI, "Fracture Systems in Lunar Flat-Bottom
Craters!"
12. November 9, 1973: Dr. Dick Morris, JSC,
"EPR Measurements on the Oxidation State of
Europium."
13. November 20, 1973: Dr. Michael R. Dence,
Ottawa, Canada, "Setting and Petrological
Characteristics of Impact Melts."
14. November 13, 1973: Professor Hannes Alfven,
University of California, San Diego, "Origin and
Evolution of the Lunar Orbit."

15. December 7, 1973: Dr. Yoji Kondo, JSC,
"Comet Kohoutek."
16. December 13, 1973: Dr. S. Ross Taylor,
LSI, "Geochemistry of the Moon."
17. December 14, 1973: Dr. S. Ross Taylor,
LSI, "Informal Report and Discussion on Mars
Conference in Pasadena."

IV. Scientific and Professional Meetings Held at the Institute

The following meetings, sponsored by the organizations as noted were held at LSI during the period of this report.

1. July 27, 1973: Conference on "The Application
of Electron Spin Resonance to Lunar Geological
Problems" Chaired by Dr. David Strangway and
Dr. Jess Carnes of JSC; approximate attendance -40.
2. August 9, 1973: Post Skylab Retreat held by
JSC; approximate attendance - 5.
3. August 21, 1973; Lecture entitled "Structured
Programming" - co sponsored by JSC and IBM;
approximate attendance - 80.
4. September 5-6, 1973: Meeting of JSC
"Aero-Thermodynamics Space Shuttle Working
Group; approximate attendance - 40.
5. September 19-21, 1973: Meeting of JSC
"Geophysical Data Evaluation Working Group"
approximate attendance - 20.

6. September 19, 1973: Meeting of Optical Society, approximate attendance - 40.
7. October 2, 1973: Meeting on "110 Stabilization Management" chaired by Mr. Bruce Johnson of JSC; approximate attendance - 50.
8. October 10, 1973: "Immunology Conference Relating to Skylab" - sponsored by Baylor College of Medicine.
9. October 18, 1973: Meeting of Clear Lake Chapter of IEEE; approximate attendance - 40.
10. October 25-26, 1973: "Alsep Instrument Review"; sponsored by NASA Headquarters; approximate attendance - 20.
11. November 14, 1973: Meeting of Gulf Coast Section, Optical Society of America; approximate attendance - 40.
12. November 17, 19, 1973: Conference entitled "ATM Experiment on Skylab"; sponsored by Naval Research Laboratory; approximate attendance - 25.
13. December 6, 1973: Meeting entitled "Early Detection of Disease Program at Baylor"; sponsored by Baylor College of Medicine.
14. December 19, 1973: "Review of IBM Hardware Proposal"; conducted by JSC Spacecraft Software Division.

V. Contributions of the Lunar Science Institute

An updated complete listing of the publication series by staff and visitors at the Institute entitled "Contributions of the Lunar Science Institute" is attached as Appendix A.

VI. Special Activities of the Institute

The following paragraphs provide a brief status report on some of the other major programs of LSI which were especially active during the period covered by this report.

A. First Lunar Petrology Conference

From July 23-25, approximately 100 lunar scientists from U. S. and Europe attended the first Lunar Petrology Conference. An additional, informal session on lunar rock nomenclature was held on July 26. The conference was structured to minimize formal presentation and maximize discussion by having only 2-3 keynote speakers per session. This format largely contributed to the overall success of the meeting. Petrologists and chemists were able to discuss their different approaches to lunar research and areas of agreement and contention. Important topics discussed included the recognition and origin of highland rocks; the characteristics of mare basalts and their role in understanding the composition of the lunar mantle; the variability and formation of lunar breccias; and models for lunar genesis based on studies of lunar, meteoritic, and terrestrial rocks.

B. Lunar Data Center

In the 1972 Post-Apollo Lunar Science Study it was concluded that "a vigorous program of lunar science investigation is essential as a continuation of the Apollo Program in the post mission era and as a more general undertaking in fundamental scientific research." The Lunar Science Institute is embarking on a program to achieve goals and objectives which are related to the growth and strengthening of lunar science in the post-Apollo period.

In general, the LSI is striving to:

1. Work with lunar scientists to create a unique facility for scientific utilization of the lunar samples, information returned from the lunar surface, orbital experiments, and for general lunar studies.
2. Facilitate communication between scientists working in the field of lunar science.
3. Promote the interaction between lunar science and workers in other areas in order to improve the quality and to stimulate diversity in lunar research.

To achieve these goals, the LSI is actively establishing a Lunar Data Center (including photo and map libraries and sample information libraries in addition to its already well established publications library). A guide to the data center and related facilities at the LSI is in preparation. Numerous lunar data users guides are

in the planning stage. These documents are designed to help investigators both familiar and unfamiliar with lunar studies to gain increased awareness of other Apollo data which might be relevant to their particular areas of interest. The Lunar Data Center is designed to aid scientists in the immediate area and also to encourage scientists to take advantage of the unique facilities concentrated in the Houston area.

C. Fifth Lunar Science Conference

Once again, the LSI will assist JSC in the planning, conduct, and publication of proceedings for the Lunar Science Conference.

The conference will be held March 18-22, 1974 at the NASA Johnson Space Center. It is being organized along somewhat different lines than previous conferences and will center on the following six broad, problem oriented topics:

1. Constraints on structure and composition of the deep interior.
2. Characteristics and movement of materials in the lunar regolith.
3. Characterization and evolution of the mare basins.
4. Characterization and evolution of the lunar crust.
5. Nature of impact processes and their effects on lunar materials
6. Exchange of material and energy between the Moon and its environment.

All abstracts submitted to the conference will be designed to address one of these problems. The abstracts are intended to be short papers. There will be fewer concurrent sessions and more time for discussion than in previous conferences. For six half-days there will be three simultaneous sessions at which investigators will present papers. A half-day session is planned for informal consortium discussions and another half-day for special talks to be selected by the Program Committee from submitted abstracts or by special invitation. On the final day the morning will be scheduled for summaries of each of the six problem-oriented topics. The following schedule indicates important dates in reference to the conference:

12/3/73	Abstract forms mailed to PI's
1/4/74	Deadline for submission of abstracts to the Fifth Conference
Mid-February	Distribution of <u>abstracts</u> volume to conference participants by mail.
3/18-22/74	Fifth Lunar Science Conference, Houston, Texas
4/19/74	Deadline for submission of manuscripts for the Proceedings of the Fifth Lunar Science Conference.

D. Lunar Geology Conference

A three-day Lunar Geology Conference will be held at the Lunar Science Institute from January 14-16, 1974.

A considerable amount of geologic information has been collected in the Apollo program through surface and orbital observations, photography, sample collection, and experiments. Much of the analysis so far has been necessarily related to the Apollo landing sites and the preliminary analysis of materials returned from these missions. By the time of the conference, over a year will have passed since the last Apollo mission and we will have moved from a mission related phase to a data analysis and synthesis phase.

Therefore, this seemed an opportune time to reconsider some of the basic problems that were addressed in planning lunar exploration, to consider how far we have gone toward answering these questions, and finally, and perhaps most importantly, to discuss future directions for lunar geologic research. This conference will, therefore, be more problem-oriented than the annual Lunar Science Conferences. Since many of the questions and problems in lunar geology are multi-disciplinary, a number of individuals from related fields are being invited. It is the intent, however, to keep attendance at a small conference level so that individual interchange is encouraged and not to duplicate the topics covered in previous LSI conferences on Lunar Geophysics and Petrology.

Proposed topics for the Geology Conference include impact processes, magmatic history, tectonics, lunar regolith, geologic provinces, and a discussion of the availability of lunar data.

E. Information Bulletin

One of the major goals of the Lunar Science Institute is to facilitate communication between investigators working in the field of lunar science. In addition, we are striving to promote the interaction between lunar science investigators and workers in other areas of science so as to maximize the quality and diversity of lunar research. To these ends, we are planning to distribute an informal short communication to a wide audience in lunar science and related areas. It will be known as the LSI Information Bulletin and will be composed and distributed as significant information is available and the need arises.

Following is a list of topics that are potential subjects for the Information Bulletin: Description of Lunar Data Center; announcement and description of specific data user guides; meeting and conference summaries; abstracts of LSI talks and seminars; short summary of work being done by a Visiting Scientist or Staff Scientist; listing of recent Apollo cartographic products and sources; new publications of interest; lunar science calendar; meeting and conference announcements; teaching guides: plans, summaries, and availability; summary of new publications and products available from NSSDC; summary of products which have been published by Curator's Office for various missions; organization and flow charts for various aspects of NASA and lunar science, including committees, review process, etc.; announcement of Visiting Scientist and other positions available at LSI;

periodic listing of scientists in residence; and LSI contributions announcements.

We anticipate that the first issue will be distributed in early February.

F. Lunar Sample Review Panel

LSI continues to operate a Lunar Sample Review Panel to review analyze, and evaluate proposals concerned with research on lunar samples. The Panel met in September and again in October. The September meeting featured a joint session with LSAPT.

The current composition of the Lunar Sample Review Panel is as follows:

Dr. John B. Adams
Fairleigh Dickinson University

Professor Arden L. Albee
California Institute of Technology

Dr. Robert N. Clayton
University of Chicago

Dr. David R. Criswell
Lunar Science Institute

Dr. Fred Frey
Massachusetts Institute of Technology

Dr. James W. Head
Lunar Science Institute

Dr. Lincoln S. Hollister
Princeton University

Dr. Johns W. Hopkins
Washington University

Dr. R. M. Housley
North American Rockwell

Dr. Klaus Keil
University of New Mexico

Dr. Kurt Marti
University of California - San Diego

Dr. Thomas A. Mutch
Brown University

Dr. Amos Nur
Stanford University

Dr. Roman Schmitt
Oregon State University

Dr. Edward Schreiber
Queens College

Dr. David W. Strangway
University of Toronto

Dr. David Wones.
U. S. Geological Survey

Dr. Robert Zartman
U. S. Geological Survey

VII. LSI Administration

A. LSI Objectives

During the summer and early fall of 1973 NASA conducted a review of the LSI program. At the same time the Board of Trustees of USRA requested its Ad-Hoc Search Committee to Select a New Director for the LSI to also make recommendations concerning the future role of LSI in lunar science. As a result of these efforts,

the mission of LSI in the immediate years ahead has been agreed upon in principle by all interested parties. The following excerpts from this agreement may be of value to help the scientific community to better understand the role of LSI and some of the programs through which it hopes to achieve its objectives:

PROGRAMS AND GOALS OF THE LUNAR SCIENCE INSTITUTE

"A vigorous program of lunar science investigations is essential as a continuation of the Apollo Program in the post-mission era and as a more general undertaking in fundamental scientific research."* The LSI can play an important role in leading this program by contribution in unique and substantive ways to the generation and promulgation of scientific knowledge concerning the Moon. It should serve as a focal point for lunar science.

To achieve this status it will require imaginative leadership to recognize needs of the scientific community and the nation and to plan innovation programs. NASA should be encouraged to avail itself of every opportunity to work through the LSI as it sees the need for general interaction with the academic community in areas of lunar science.

Specifically, the LSI should fulfill the following roles:

1. Work with lunar scientists to create a unique facility for scientific utilization of the lunar

*Post Apollo Lunar Science, Summer Study 1972, page 1.

samples, information returned from the lunar surface, orbital experiments, and for general lunar studies.

2. Facilitate communication between scientists working in the field of lunar science.

3. Promote the interaction between lunar science and workers in other areas of science in such a fashion as to maximize the overall quality and diversity of lunar research.

4. Communicate the results of lunar science to scientists, the academic community, and to the general public.

5. Provide a forum for the critical evaluation of the lunar program and its overall relationship to planetary and space sciences.

To implement these major objectives, the following program can be defined for the Lunar Science Institute:

1. Establishment of the Lunar Data Center*

*It should be noted that the intent was not to set up a truly encyclopedic library of photos, maps and publications, but rather a very good working library. In no way should the photo science and map library grow into an enormous research program which exhausts the resources of the LSI. The effective quality of the libraries will be a reflection of its accessibility and completeness (in that order) and how much service it can provide to the scientific community.

a. Lunar Photo Science and Map Library

- (1) Photo library with a staff geologist to aid investigators, and facilities to make certain basic measurements.
- (2) Black and white films of EVA's with accompanying transcripts.
- (3) Regional maps.
- (4) Topographic mission maps.
- (5) To establish means to aid scientists in efficiently selecting and obtaining mission and rock photographs from different repositories on a rapid time scale.
- (6) Photo lending library to encourage maximum use of photographic data.

b. Lunar Sample Information Library

- (1) Photographs and cutting diagrams of all rocks.
- (2) Basic information file on samples.
- (3) Models of rocks.
- (4) Library of selected thin sections of lunar rocks

c. Lunar Science Publication Library

Cataloging, indexing, and retrieval of subject information in publications, reports, and books.

The intended scope is a basic set of lunar publications and an appropriate key word list to provide rapid and efficient access to information and documents from a wide variety of government and university repositories.

2. Scientific Symposium Program

- a. A program to facilitate communication on specialized topical subjects in the lunar sciences.
- b. A program directed towards synthesizing the overall content of lunar science.
- c. A program to promote imaginative interaction with non-lunar scientists in order to identify new fields of research.

3. Visiting Scientist Program

- a. Appointments to encourage and stimulate the productive use of lunar data through the data center.

- b. Appointments on an international basis to provide interaction among lunar scientists, and between lunar scientists and scholars from other segments of the scientific community.
- c. Appointments designed to broaden the base of the lunar science community.
- d. Establishment of a working relation between the Johnson Spacecraft Center and the Lunar Science Institute which will provide reasonable access to the unique facilities at JSC for qualified lunar scientists on visiting appointments.

4. Publications and Communications

- a. Provide publications, particularly directed toward syntheses of lunar data and diverse studies on collections of lunar data.
- b. Make available the results of important symposia to the scientific community at large.
- c. Develop a dynamic program to interpret and disseminate new and important results of the lunar science program to the public at large. This is an area that has not received attention by the LSI in the past and one that is deemed of crucial importance for the future.

B. Directorship of the Lunar Science Institute

The ad-hoc search committee appointed by the Board of Trustees of USRA has made its report to the Board containing its recommendations and USRA, with the assistance of some members of this committee and its Advisory Committee for the LSI, is proceeding with the recruitment of a new director. In the interim, arrangements have been made with Brown University to allow one of their faculty, Dr. James W. Head, to serve as Interim Director.

C. Board of Trustee Actions

In the fall of 1972 the Board of Trustees appointed an Advisory Committee for the Lunar Science Institute to advise it as well as the Director of LSI concerning policy and programs to assure that USRA is being responsive to the needs of the scientific community and NASA. Dr. Robert Pepin of the University of Minnesota, who served as chairman of the committee since its inception, resigned from this post in July, but the committee continued action with Dr. Strangway replacing Dr. Pepin on the committee and Dr. Kuhlthau serving as Acting Chairman.

The Advisory Committee met twice during the period: in August in Boulder, Colorado jointly with the Ad-Hoc Search Committee, and in October at the Lunar Science Institute.

The Board itself met in October at LSI and in response to inputs from the reviews mentioned in Section A, and from both the Advisory Committee and Ad-Hoc Search Committee, adopted a new approach to

its own responsibilities and concerns with the management and guidance of LSI. This consisted of the formation of a Scientific Council for LSI as described below:

CREATION OF SCIENTIFIC COUNCIL

1. The Board of Trustees of USRA would continue to have the corporate responsibility for administrative and management policies for all activities, including the LSI. This includes the ultimate responsibility of confirming the appointment of the director.

2. The Board of Trustees should appoint, with due consultation from whatever sources they consider to be appropriate, a Scientific Council for each major activity within its responsibility.

3. The number of members of each Scientific Council needs to be determined in a way consistent with the objectives and functions of the Council. It need not be the same for each facility.

4. The criteria for membership on the Scientific Council should consider the following:

- a. Interest of individual in the general scientific area and mission of the activity.
- b. Competence of individual in his field.
- c. Status or acceptance of individual by the general community of lunar scientists.
- d. Willingness of the individual's institution to participate with their representative in whatever way necessary to assure the proper support of the activity.

e. Resources, reputation, and scope of interest
of the institution in the particular area of endeavor.

5. The terms of the members of each Scientific Council
should be finite, with ability to reappoint or replace as deemed appropriate
by the Trustees.

6. The Council shall be responsible for the formulation and approval
of all policy relating to the technical or scientific programs of the activity,
including the selection and recommendation of the activity director to the
Trustees for confirmation. It shall also be responsible for the review
and evaluation of the program. When deemed necessary or important for
the improvement of the scientific program, they should recommend changes
in administrative or management policy to the Trustees for action.

7. Corporate financial resources, as recommended by the
Scientific Council, and approved by the Trustees, should be made available
to the Council for the development of the program at the activity. It is not
intended that these funds be used for normal operating expenses, but rather
for capital investment if required or as a reserve for taking reasonable
risks in program development where ultimate reimbursement is likely.
The Council should submit an annual budget request to the Trustees for
such corporate funds as they might require during the year, stating the
purposes for which the funds are to be devoted. Interim emergency requests
can be made if absolutely essential in the opinion of the Council.

This concept has been reviewed and endorsed by the Advisory Committee, and it is expected that the formation of the Scientific Council for the Lunar Science Institute will be completed by mid-spring.

LSI CONTRIBUTIONS

NO.

- | | |
|---|--|
| 1 | <p>AUTHOR: Harold C. Urey</p> <p>TITLE: "Early Temperature History of the Moon"</p> <p>SUBMITTED</p> <p style="padding-left: 20px;">To: Science</p> <p style="padding-left: 20px;">Date: Date unknown</p> <p>ACCEPTED: Date unknown</p> <p>PUBLISHED: September 19, 1969, Vol. 165, p. 1275</p> <p>REPRINTS ORDERED: September 12, 1969</p> <p>REPRINTS RECEIVED: December 5, 1969</p> |
| 2 | <p>AUTHOR: Friedrich Hörz, W. L. Quaide</p> <p>TITLE: "Debye-Scherrer Investigations of Experimentally Shocked Silicates"</p> <p>SUBMITTED</p> <p style="padding-left: 20px;">To: MOON</p> <p style="padding-left: 20px;">Date: April 1972</p> <p>ACCEPTED: April 1972</p> <p>PUBLISHED: Moon <u>6</u>, 45-82 (1973)</p> <p>REPRINTS ORDERED: July 28, 1972</p> <p>REPRINTS RECEIVED: April 17, 1973</p> |
| 3 | <p>AUTHOR: Friedrich Hörz, J. B. Hartung, D. E. Gault</p> <p>TITLE: "Micrometeorite Craters and Related Features on Lunar Rock Surfaces"</p> <p>SUBMITTED</p> <p style="padding-left: 20px;">To: Earth and Planetary Science Letters</p> <p style="padding-left: 20px;">Date: October 10, 1970</p> <p>ACCEPTED: January 14, 1971</p> <p>PUBLISHED: March 1971, Vol. 10, No. 4, pp. 381-386</p> <p>REPRINTS ORDERED: February 10, 1971</p> <p>REPRINTS RECEIVED: April 28, 1971</p> |
| 4 | <p>AUTHOR: Luciano B. Ronca</p> <p>TITLE: "The Relationship Between Lunar Hot Spots and the Geomorphic Index"</p> <p>SUBMITTED</p> <p style="padding-left: 20px;">To: The Moon</p> <p style="padding-left: 20px;">Date: August 2, 1970</p> <p>ACCEPTED: September 3, 1970</p> <p>PUBLISHED: Dec. 1970, The Moon, Vol. 2, No. 2, pp. 202-210</p> <p>REPRINTS ORDERED: October 2, 1970</p> <p>REPRINTS RECEIVED: March 1, 1971</p> |

LSI Contributions

NO.

- 5 AUTHOR: Ralph Morganstern
 TITLE: "Comment on the Spin Precession of the Schiff
 Satellite in the Brans-Dicke Theory"
 SUBMITTED
 To: Physical Review D 15
 Date: July 21, 1970
 ACCEPTED: October 23, 1970
 PUBLISHED: January 15, 1971, Vol. 3, No. 2, pp. 616-617
 REPRINTS ORDERED: October 30, 1970
 REPRINTS RECEIVED: March 11, 1971
- 6 AUTHOR: A. E. Ringwood
 TITLE: "Core-Mantle Equilibrium: Comments on a
 Paper by R. Brett"
 SUBMITTED
 To: Geochimica et Cosmochimica Acta
 Date: September, 1970
 ACCEPTED: September, 1970
 PUBLISHED: February, 1971, Vol. 35, No. 2, pp. 223-230
 REPRINTS ORDERED: March 22, 1971
 REPRINTS RECEIVED: April 28, 1970
- 7 AUTHOR: A. E. Ringwood
 TITLE: "Petrogenesis of Apollo 11 Basalts and Impli-
 cations for Lunar Origin"
 SUBMITTED
 To: Journal of Geophysical Research
 Date: September, 1970
 ACCEPTED: Date unknown
 PUBLISHED: Nov. 10, 1970, Vol. 75, No. 32, pp. 6453-6479
 REPRINTS ORDERED: October 30, 1970
 REPRINTS RECEIVED: December 29, 1970
- 8 AUTHOR: Luciano B. Ronca
 TITLE: "Ages of the Lunar Mare Surfaces"
 SUBMITTED
 To: The Geological Society of America Bulletin
 Date: September, 1970
 ACCEPTED: December 16, 1970
 PUBLISHED: June 1971, Vol. 82, pp. 1743-1748
 REPRINTS ORDERED: March 29, 1971
 REPRINTS RECEIVED: August 3, 1971

LSI Contributions

NO.

- 9 AUTHOR: Friedrich Hörz , J. B. Hartung, D. E. Gault
 TITLE: "Micrometeorite Craters on Lunar Rock Surfaces"
 SUBMITTED
 To: Journal of Geophysical Research
 Date: April 28, 1971
 ACCEPTED: May 12, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5770-5798
 REPRINTS ORDERED: July 2, 1971
 REPRINTS RECEIVED: October 22, 1971
- 10 AUTHOR: Luciano B. Ronca
 TITLE: "Relationships Between Geomorphic Index, Lunar
 Stratigraphy, Ages of the Maria, and Hot Spots"
 SUBMITTED
 To: Geological Society of America for the GSA Annual
 Meeting Program (1970)
 Date: October 15, 1970
 ACCEPTED: October 29, 1970
 PUBLISHED: Oct., 1971, Vol. 2, #7, pp. 786-787
 REPRINTS ORDERED: N/A
 REPRINTS RECEIVED: N/A
- 11 AUTHOR: John D. Weete, S. Venketeswaran, J. Laseter
 TITLE: "Two Populations of Aliphatic Hydrocarbons of
 Teratoma and Habituated Tissue Cultures of
 Tobacco"
 SUBMITTED
 To: Phytochemistry
 Date: October, 1970
 ACCEPTED: November 5, 1970
 PUBLISHED: May 1971, Vol. 10, No. 5, pp. 939-943
 REPRINTS ORDERED: December 8, 1970
 REPRINTS RECEIVED: July 1, 1971
- 12 AUTHOR: J. L. Laseter, John D. Weete
 TITLE: "Fatty Acid Ethyl Esters of Rhizopus Arrhizus"
 SUBMITTED
 To: Science
 Date: November 4, 1970
 ACCEPTED: February 26, 1971
 PUBLISHED: May 21, 1971, Vol. 172, No. 3985, pp. 864-865
 REPRINTS ORDERED: April 28, 1971
 REPRINTS RECEIVED: July 1, 1971

LSI Contributions

NO.

- 13 AUTHOR: A. E. Ringwood
 TITLE: "Origin of the Moon" (Clarke Memorial Lecture)
 SUBMITTED
 To: Royal Society of New South Wales
 Date: September, 1970
 ACCEPTED: September, 1970
 PUBLISHED: 1970, Vol. 103, Part 2, pp. 57-75
 REPRINTS ORDERED: - N/A
 REPRINTS RECEIVED: - N/A
- 14 AUTHOR: Friedrich Hörz and J. B. Hartung
 TITLE: "The Lunar Surface Orientation of Some Apollo 12
 Rocks"
 SUBMITTED Proceedings of the Second Lunar Science
 To: Conference
 Date: February 9, 1971
 ACCEPTED: March 29, 1971
 PUBLISHED: 1971, Vol. 3, pp. 2629-2638
 REPRINTS ORDERED: May 25, 1971
 REPRINTS RECEIVED: January 4, 1972
- 15 AUTHOR: Friedrich Hörz and L. B. Ronca
 TITLE: "A Classification of Impact Craters"
 SUBMITTED
 To: Modern Geology
 Date: December 8, 1970
 ACCEPTED: December 8, 1970
 PUBLISHED: April 1971, Vol. 2, No. 2, pp. 65-69
 REPRINTS ORDERED: February 3, 1971
 REPRINTS RECEIVED: July 1, 1971
- 16 AUTHOR: T. Thompson, R. Shorthill, S. Zisk, H. Masursky,
 G. Tyler
 TITLE: "A Comparison of Infrared Radar and Geologic
 Mapping of Lunar Craters"
 SUBMITTED
 To:

 Date:
 ACCEPTED:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:

LSI Contributions

NO.

- 17 AUTHOR: W. von Engelhardt, Friedrich Hörz, D. Stöffler
 TITLE: "The Definition of Silevite and Its Application
 to Impact Breccias"
 SUBMITTED
 To: (Not yet submitted)
 Date:
 ACCEPTED:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 18 AUTHOR: Friedrich Hörz, T. Foss
 TITLE: "Meeting: Meteorite Impact and Volcanism"
 SUBMITTED
 To: EOS Transactions of the American Geophysical
 Union
 Date: December 15, 1970
 ACCEPTED: December 28, 1970
 PUBLISHED: March 1971, Vol. 52, No. 3, pp. 101-102
 REPRINTS ORDERED: January 25, 1971
 REPRINTS RECEIVED: April 23, 1971
- 19 AUTHOR: Ralph E. Morganstern
 TITLE: "Brans-Dicke Theory Under Transformation of
 Units and Three Tests"
 SUBMITTED
 To: The Physical Review D
 Date: January 7, 1971
 ACCEPTED: March 25, 1971
 PUBLISHED: v.3, 2946-2950 (1971)
 REPRINTS ORDERED April 8, 1971
 REPRINTS RECEIVED: August 24, 1971
- 20 AUTHOR: S. Fred Singer, L. W. Bandermaann
 TITLE: "Where Was the Moon Formed?"
 SUBMITTED
 To: Science
 Date: July 23, 1970
 ACCEPTED: August 27, 1970
 PUBLISHED: October 23, 1970, Vol. 170, No. 3956, pp. 438-439
 REPRINTS ORDERED: October 27, 1970
 REPRINTS RECEIVED: March 24, 1971

LSI Contributions

NO.

- 21 AUTHOR: S. Fred Singer
 TITLE: "How Did Venus Lose Its Angular Momentum?"
 SUBMITTED
 To: Science
 Date: August 5, 1970
 ACCEPTED: September 21, 1970
 PUBLISHED: December 11, 1970, Vol. 170, No. 3963, pp. 1196-1198
 REPRINTS ORDERED: November 23, 1970
 REPRINTS RECEIVED: January 15, 1971
- 22 AUTHOR: Ki-iti Horai, Gene Simmons
 TITLE: "Thermal Property Measurements on Lunar
 Material Returned by Apollo 11 and 12
 Missions"
 SUBMITTED
 To: Lucas, John W., ed., Thermal characteristics of the
 Moon, MIT Press, 1972. (Progress in Astronautics
 and Aeronautics, v.28)
 Date: December 18, 1970
 ACCEPTED: March 10, 1971
 PUBLISHED: pp. 243-267
 REPRINTS ORDERED: February 17, 1972 (limited supply only)
 REPRINTS RECEIVED: April 18, 1973
- 23 AUTHOR: Ki-iti Horai, A. Nur
 TITLE: Reply to P. S. Naidu's comments on a paper
 by K. Horai & A. Nur, "Relationship Among
 Terrestrial Heat Flow, Thermal Conductivity,
 and Geothermal Gradient"
 SUBMITTED
 To: Journal of Geophysical Research
 Date: January 6, 1971
 ACCEPTED: January 15, 1971
 PUBLISHED: May 10, 1971, Vol. 76, No. 14, p. 3428
 REPRINTS ORDERED: March 29, 1971
 REPRINTS RECEIVED: July 14, 1971

LSI Contributions

NO.

- 24 AUTHOR: David R. Criswell
 TITLE: "Electric Fields and Motion of Lunar Fines"
 SUBMITTED
 To: EOS Transactions of the American Geophysical
 Union
 Date: January 7, 1971
 ACCEPTED: March, 1971
 PUBLISHED: April 1971, Vol. 52, No. 4, p. 266
 REPRINTS ORDERED: N/A
 REPRINTS RECEIVED: N/A
- 25 AUTHOR: Ralph E. Morganstern
 TITLE: "Brans-Dicke Cosmologies in Arbitrary Units:
 Solutions in Flat Friedmann Universes"
 SUBMITTED
 To: The Physical Review D15
 Date: January 7, 1971
 ACCEPTED: March 25, 1971
 PUBLISHED: July 15, 1971, Vol. 4, No. 2, pp. 278-282
 REPRINTS ORDERED: April 8, 1971
 REPRINTS RECEIVED: November 1, 1971
- 26 AUTHOR: Ralph E. Morganstern
 TITLE: "Exact Solutions to Radiation Filled Brans-
 Dicke Cosmologies"
 SUBMITTED
 To: The Physical Review D15
 Date: January 22, 1971
 ACCEPTED: March 25, 1971
 PUBLISHED: July 15, 1971, Vol. 4, No. 2, pp. 282-286
 REPRINTS ORDERED: April 8, 1971
 REPRINTS RECEIVED: November 1, 1971
- 27 AUTHOR: S. R. Taylor, et al.
 TITLE: "Preliminary Chemical Analyses of Apollo 11
 Lunar Samples"
 SUBMITTED
 To: Proceedings of the Apollo 11 Lunar Science
 Conference
 Date: Date unknown
 ACCEPTED: Date unknown
 PUBLISHED: 1970, Vol. 2, pp. 1627 - 1635
 REPRINTS ORDERED: April 7, 1971
 REPRINTS RECEIVED: April 28, 1971

LSI Contributions

NO.

- 28 AUTHOR: S. Fred Singer
 TITLE: Comments on a paper by A. E. Ringwood,
 "Petrogenesis of Apollo 11 Basalts and
 Implications for Lunar Origin"
- SUBMITTED
 To: Journal of Geophysical Research
 Date: January 27, 1971
 ACCEPTED: September 24, 1971
 PUBLISHED: November 10, 1971, Vol. 76, #32, pp. 8071-8074
 REPRINTS ORDERED: September 28, 1971
 REPRINTS RECEIVED: December 21, 1971
- 29 AUTHOR: John D. Weete and Charles H. Walkinshaw
 TITLE: "Apollo 12 Lunar Material: Effects on
 SUBMITTED Plant Pigments"
- To: Canadian Journal of Botany
 Date: July 6, 1971
 ACCEPTED: September 29, 1971
 PUBLISHED: Vol. 50, 101-104, January 1972
 REPRINTS ORDERED: November 22, 1971
 REPRINTS RECEIVED: February 17, 1972
- 30 AUTHOR: Petr Jakes^v, A. J. R. White
 TITLE: "Composition of Island Arcs and Continental
 Growth"
- SUBMITTED
 To: Earth and Planetary Science Letters
 Date: May 12, 1971
 ACCEPTED: July 1, 1971
 PUBLISHED: Vol. 12, 224-230 (1971)
 REPRINTS ORDERED: July 30, 1971
 REPRINTS RECEIVED: February 15, 1972
- 31 AUTHOR: J. R. Rossiter, A. P. Annan, G. A. LaTorraca,
 D. W. Strangway, and G. Simmons
 TITLE: "Radio Interferometry Depth Sounding, Part II -
 Experimental Results"
- SUBMITTED
 To: Geophysics
 Date: February, 1972
 ACCEPTED: Geophysics 38, 581-599 (1973)
 PUBLISHED: Geophysics 38, 581-599 (1973)
 REPRINTS ORDERED: September 20, 1973
 REPRINTS RECEIVED: September 20, 1973
- 32 AUTHOR: Michael F. Sheridan
 TITLE: "Particle-Size Characteristics of Pyroclastic
 Tuffs"
- SUBMITTED
 To: Journal of Geophysical Research, special issue
 on "Meteorite Impact and Volcanism"
- Date: January 1971
 ACCEPTED: February 16, 1971
 PUBLISHED: August 10, 1971, Vol. 76 No. 23, pp. 5627-5634
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 33 AUTHOR: R. A. De Hon
 TITLE: "Cauldron Subsidence in Lunar Craters Ritter
 and Sabine"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 17, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5712-5718
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 34 AUTHOR: Robin Holcomb
 TITLE: "Terraced Depressions in Lunar Maria"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 17, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5703-5711
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 35 AUTHOR: Francois Kraut, Bevan M. French
 TITLE: "The Rochechouart Meteorite Impact Structure,
 France: Preliminary Geological Results"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 17, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5407-5413
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 36 AUTHOR: Billy P. Glass
 TITLE: "Investigation of Glass Recovered from
 Apollo 12 Sample No. 12057"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 23, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5649-5657
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 37 AUTHOR: K. L. Currie
 TITLE: "The Origin of Igneous Rocks Associated
 with Shock Metamorphism as Suggested by
 Geochemical Investigations of Canadian
 Craters"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5575-5585
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 38 AUTHOR: C. S. Beals
 TITLE: "Crustal Thickness and the Forms of
 Impact Craters"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5586-5595
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 39 AUTHOR: Grant H. Heiken
 TITLE: "Tuff Rings"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5615-5626
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 40 AUTHOR: Jack Green
 TITLE: "Copernicus as a Lunar Caldera"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5719-5731
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 41 AUTHOR: Rex V. Gibbons, Thomas J. Ahrens
 TITLE: "Shock Metamorphism of Silicate Glasses"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5489-5498
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 42 AUTHOR: D. J. Guppy, Robin Brett, D. J. Milton
 TITLE: "Liverpool and Strangways Craters, Northern
 Territory: Two Structures of Probable
 Impact Origin"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: February 25, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5387-5393
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 43 AUTHOR: J. D. Kleeman
 TITLE: "The Formation of Diaplectic Glass by
 Experimental Shock-Loading of Orthoclase"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 1, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5499-5503
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 44 AUTHOR: Gary Lofgren
 TITLE: "Spherulitic Textures in Glassy and
 Crystalline Rocks"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 1, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5635-5648
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 45 AUTHOR: Aaron C. Waters, Richard V. Fisher
 TITLE: "Base Surges and Their Deposits:
 Capelinhos and Taal Volcanoes"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"

 Date: January 1971
 ACCEPTED: March 1, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5596-5614
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 46 AUTHOR: Jehan Rondot
 TITLE: "Impactite of the Charlevoix Structure,
 Quebec, Canada"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"

 Date: January 1971
 ACCEPTED: March 1, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5414-5423
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 47 AUTHOR: Donald P. Elston and G. Robert Scott
 TITLE: "Pueblito de Allende Penetration Craters
 and Experimental Craters Formed by Free
 Fall"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"

 Date: January 1971
 ACCEPTED: March 2, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5756-5764
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 48 AUTHOR: L. B. Ronca
 TITLE: "The Ages of the Lunar Seas"
 SUBMITTED
 To: Proceedings of the National Academy of
 Sciences

 Date: January 1971
 ACCEPTED: February 27, 1971
 PUBLISHED: June 19, 1971, Vol. 68, No. 6, pp. 1188-1189
 REPRINTS ORDERED: May 11, 1971
 REPRINTS RECEIVED: July 16, 1971

NO.

LSI Contributions

- 49 AUTHOR: David R. Criswell
 TITLE: "Schematic Explanation of Cyclotron-
 Resonance Interaction"
 SUBMITTED Abstract only
 To: Presented at American Physical Society
 meeting
 Date: February 4, 1971
 ACCEPTED: January 15, 1971
 PUBLISHED:
 REPRINTS: Not applicable
- 50 AUTHOR: K. Nakamura, K. Horai
 TITLE: "Iceland, from the New Global Tectonic
 Point of View (A review in Japanese)"
 SUBMITTED Kagaku (Science)
 To: Kagaku (Science)
 Date: March 1, 1971
 ACCEPTED: March 4, 1971
 PUBLISHED: April 1, 1971, Kagaku, Vol. 41, No. 4, pp. 185-198
 REPRINTS ORDERED: None will be ordered (30 free to the authors)
 REPRINTS RECEIVED: N/A
- 51 AUTHOR: L. B. Ronca
 TITLE: "The Geomorphic Evolution of the Lunar
 Surface"
 SUBMITTED Urey & Runcorn (eds.) The Moon, D. Reidel, 1972.
 To: (IAU Symposium no. 47)
 Date: June 1, 1971
 ACCEPTED:
 PUBLISHED: pp. 43-54
 REPRINTS ORDERED: January 1, 1972
 REPRINTS RECEIVED: January 22, 1973
- 52 AUTHOR: John G. Dennis
 TITLE: "Ries Structure, Southern Germany, A Review"
 SUBMITTED Journal of Geophysical Research, special
 To: issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 6, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5394-5406
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 53 AUTHOR: Dieter Stöffler
 TITLE: "Coesite and Stishovite in Shocked
 Crystalline Rocks"
 SUBMITTED Journal of Geophysical Research, special
 To: issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 7, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5474-5488
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 54 AUTHOR: Wolf v. Engelhardt
 TITLE: "Detrital Impact Formations"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 9, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5566-5574
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 55 AUTHOR: Dieter Stöffler
 TITLE: "Progressive Metamorphism and Classifica-
 tion of Shocked and Brecciated Crystalline
 Rocks at Impact Craters"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 9, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5541-5551
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 56 AUTHOR: Neville L. Carter
 TITLE: "Static Deformation of Silica and Silicates"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 9, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5514-5540
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 57 AUTHOR: Thomas J. Ahrens, Edward S. Gaffney
 TITLE: "Dynamic Compression of Enstatite"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 11, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5504-5513
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971

LSI Contributions

NO.

- 58 AUTHOR: Eugene I. Smith
 TITLE: "The Determination of Origin of Small
 Lunar and Terrestrial Craters by Depth-
 Diameter Ratio"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 11, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5683-5689
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 59 AUTHOR: Wolfgang E. Elston, Merritt J. Aldrich,
 Eugene I. Smith, Rodney C. Rhodes
 TITLE: "Non-Random Distribution of Lunar Craters"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 11, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5675-5682
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 60 AUTHOR: Wolfgang E. Elston, A. William Laughlin,
 J. A. Brower
 TITLE: "Lunar Near-Side Tectonic Patterns from
 Orbiter 4 Photographs"
 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 11, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5670-5674
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 61 AUTHOR: R. T. Brinkmann
 TITLE: "Mars: Has Nitrogen Escaped?"
 SUBMITTED
 To: Science
 Date: July, 1971
 ACCEPTED: September 13, 1971
 PUBLISHED: November 26, 1971, Vol. 174, 944-945
 REPRINTS ORDERED: November 1, 1971
 REPRINTS RECEIVED: January, 1972

LSI Contributions

NO.

- 62 AUTHOR: Nils-Bertil Svensson
 TITLE: "Lappajärvi Structure, Finland:
 Morphology of an Eroded Structure"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 14, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5382-5386
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 63 AUTHOR: John S. Rinehart, Ronald Greeley
 TITLE: "Seismic Wave Velocity Patterns in Some
 Pahoehe Basalt Flows"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 16, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5765-5769
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 64 AUTHOR: Wolfgang E. Elston
 TITLE: "Evidence for Lunar Volcano-Tectonic
 Features"

 SUBMITTED
 To: Journal of Geophysical Research, special
 issue on "Meteorite Impact and Volcanism"
 Date: January 1971
 ACCEPTED: March 19, 1971
 PUBLISHED: August 10, 1971, Vol. 76, No. 23, pp. 5690-5702
 REPRINTS ORDERED: July 23, 1971
 REPRINTS RECEIVED: August 19, 1971
- 65 AUTHOR: P. Jakes, A.J.R. White
 TITLE: "Major and Trace Element Abundances in Volcanic
 Rocks of Orogenic Areas"

 SUBMITTED
 To: Geological Society of America Bulletin
 Date: April 1, 1971
 ACCEPTED: May, 1971
 PUBLISHED: January, 1972, Vol. 83, 29-40
 REPRINTS ORDERED: January, 1972
 REPRINTS RECEIVED: February 21, 1972 (limited supply only)

LSI Contributions

NO.

- 66 AUTHOR: Dr. John D. Weete
 TITLE: "Total Fatty Acids of Habituated and Teratoma
 Tissues of Tobacco"

 SUBMITTED
 To: Lipids
 Date: April 5, 1971
 ACCEPTED: June 2, 1971
 PUBLISHED: September, 1971, Vol. 6 (9), pg. 684
 REPRINTS ORDERED: September 3, 1971
 REPRINTS RECEIVED: February 10, 1972
- 67 AUTHOR: Dr. R. E. Morganstern
 TITLE: "A Cosmological Upper Limit on the Variation
 of G"

 SUBMITTED
 To: Nature
 Date: May 21, 1971
 ACCEPTED: June 17, 1971
 PUBLISHED: July 9, 1971, Vol. 232, No. 5306, pp. 109-110
 REPRINTS ORDERED: July 19, 1971
 REPRINTS RECEIVED: December 7, 1971
- 68 AUTHOR: S. Fred Singer
 TITLE: "Origin of the Moon by Capture and Its
 Consequences"

 SUBMITTED
 To: EOS Transactions, American Geophysical Union
 Date: September, 1970
 ACCEPTED: September, 1970
 PUBLISHED: September, 1970 Vol. 51, No. 9, pp. 637-641
 REPRINTS ORDERED: April 15, 1971
 REPRINTS RECEIVED: June 3, 1971
- 69 AUTHOR: R. E. Morganstern
 TITLE: "Exact Solutions to Brans-Dicke Cosmologies
 in Flat Friedman Universes"

 SUBMITTED
 To: The Physical Review D
 Date: April 19, 1971
 ACCEPTED: May 21, 1971
 PUBLISHED: August 15, 1971, Vol. 4, No. 4, pp. 946-954
 REPRINTS ORDERED: June 15, 1971
 REPRINTS RECEIVED: January, 1972

LSI Contributions

NO.

- 70 AUTHOR: Ki-iti Horai and Scott Baldrige
 TITLE: "Thermal Conductivity of Nineteen Igneous
 Rocks; Part 1, Application of Needle Probe
 Method to Measurement of Thermal Conducti-
 vity of Rock"
 SUBMITTED Physics of the Earth and Planetary Interiors
 To: North-Holland Publishing Co. Amsterdam, Netherlands
 Date: June 8, 1971
 ACCEPTED: August 24, 1971
 Expected Publication Date: January, 1972
 PUBLISHED: Physics of Earth & Planetary Interiors, 5, 151-156, 1971
 REPRINTS ORDERED: December 6, 1971
 REPRINTS RECEIVED: April 5, 1972
- 71 AUTHOR: Ki-iti Horai and Scott Baldrige
 TITLE: "Thermal Conductivity of Nineteen Igneous
 Rocks; Part 2, Estimation of Thermal Conduc-
 tivity of Rock from Mineral and Chemical
 Compositions"
 SUBMITTED Physics of the Earth and Planetary Interiors
 To: North-Holland Publishing Co. Amsterdam, Netherlands
 Date: June 8, 1971
 ACCEPTED: August 24, 1971
 Expected Publication Date: January, 1972
 PUBLISHED: Physics of Earth & Planetary Interiors, 5, 157-166, 1972
 REPRINTS ORDERED: January 4, 1972
 REPRINTS RECEIVED: April 6, 1972
- 72 AUTHOR: J. D. Weete, C. H. Walkinshaw, and J. C. Laseter
 TITLE: "Apollo 12 Lunar Material: Effects on Lipid
 Levels of Habituated Tobacco Tissue Cultures"
 SUBMITTED Science
 To: Science
 Date: June 20, 1971
 ACCEPTED: October, 1971
 Expected Publication Date:
 PUBLISHED: Vol. 175, 623-4, 1972
 REPRINTS ORDERED: January 21, 1972
 REPRINTS RECEIVED: March 9, 1972
- 73 AUTHOR: F. K. Aitken, D. H. Anderson, M. N. Bass, R. W.
 Brown, P. Butler, Jr., G. Heiken, P. Jakes,
 A. M. Reid, W. I. Ridley, H. Takeda, J. Warner,
 R. J. Williams
 TITLE: "Apollo 14: Nature and Origin of Rock
 Types in Soil from the Fra Mauro
 Formation"
 SUBMITTED Earth and Planetary Science Letters
 To: Earth and Planetary Science Letters
 Date: June 9, 1971
 ACCEPTED: June 21, 1971
 Expected Publication Date: (about September, 1971)
 PUBLISHED: September, 1971, Vol. 12, No. 1, pp. 49-54
 REPRINTS ORDERED: None ordered (A. Reid to send his extra reprints 12/71)
 REPRINTS RECEIVED: December 27, 1971

LSI Contributions

NO.

- 74 AUTHOR: Petr Jakes^v, A.J.R. White
 TITLE: "Hornblendes from Calc-alkaline Volcanic Rocks
 of Island Arcs and Continental Margins"
 SUBMITTED
 To: American Mineralogist
 Date: July 11, 1971
 ACCEPTED:
 Expected Publication Date: May-June 1972
 PUBLISHED: American Mineralogist, 57, 887-902, 1972
 REPRINTS ORDERED: April 14, 1972
 REPRINTS RECEIVED: August 7, 1972
- 75 AUTHOR: Ki-iti Horai
 TITLE: "Cross-covariance Analysis of Heat Flow and
 Gravitational Field of the Earth"
 SUBMITTED
 To: Tectonophysics
 Date: January, 1972
 ACCEPTED: July 1972
 Expected Publication Date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 76 AUTHOR: S. H. Zisk, M. H. Carr, H. Masursky, R. W.
 Shorthill, T. W. Thompson
 TITLE: "Lunar Apennine-Hadley Region: Geological
 Implications of Earth-Based Radar and Infrared
 Measurements"
 SUBMITTED
 To: Science
 Date: June, 1971
 ACCEPTED: July, 1971
 Expected Publication Date: August 20, 1971
 PUBLISHED: August 27, 1971, Vol. 173, pp. 808-812
 REPRINTS ORDERED: August 10, 1971
 REPRINTS RECEIVED: October 26, 1971
- 77 AUTHOR: John D. Weete
 TITLE: "Aliphatic Hydrocarbons of the Fungi"
 SUBMITTED
 To: Phytochemistry
 Date: August 10, 1971
 ACCEPTED: September 24, 1971
 Expected Publication Date: July, 1972
 PUBLISHED: Vol. 11, 1201-1205 (1972)
 REPRINTS ORDERED: January 4, 1972
 REPRINTS RECEIVED: April 10, 1972

LSI Contributions

- NO.
- 78 AUTHOR: Petr Jakes^y, Arch Reid
TITLE: "Petrology of a Portion of the Mare Fecunditatis
 Regolith"
SUBMITTED
 To: Earth and Planetary Science Letters
 Date: December, 1971
ACCEPTED: December 1971
 Expected Publication Date:
PUBLISHED: Earth & Planetary Science Letters, 13, 257-271, 1972
REPRINTS ORDERED: January 4, 1972
REPRINTS RECEIVED: August 25, 1972
- 79 AUTHOR: David W. Strangway, G. W. Pearce, W. A. Gose,
 R. W. Timme
TITLE: "Remanent Magnetization of Lunar Samples"
SUBMITTED
 To: Earth and Planetary Science Letters
 Date: November 15, 1971
ACCEPTED: Expected Publication Date:
 Expected Publication Date:
PUBLISHED: Vol. 13, 41-52, December II, 1971
REPRINTS ORDERED: 3/14/72 (50 from D. Strangway)
REPRINTS RECEIVED: 3/14/72 (50 from D. Strangway)
- 80 AUTHOR: John A. Wood
TITLE: "Thermal History and Early Magmatism in the Moon"
SUBMITTED
 To: Icarus
 Date: November 1, 1971
ACCEPTED: December 15, 1971
 Expected Publication Date:
PUBLISHED: Icarus, 16, 229-240, 1972
REPRINTS ORDERED: December 29, 1971
REPRINTS RECEIVED: June 22, 1972
- 81 AUTHOR: A. M. Reid; Ridley, W.I.; Harmon, Russell S.;
 Warner, Jeff; Brett, Robin; Jakes, Petr; Brown R.W.
TITLE: Highly aluminous glasses in Lunar Soils and the Nature
 of the Lunar Highlands"
SUBMITTED:
 To: Geochimica Et Cosmochimica Acta
 Date:
ACCEPTED: March 22, 1972
 Expected Publication Date:
PUBLISHED: Geochimica et Cosmochimica Acta, 36, 903-912, 1972
REPRINTS ORDERED: May 25, 1972
REPRINTS RECEIVED: September 28, 1972

NO.

- 82 AUTHOR: Z. Kopal
 TITLE: The effects of viscous friction on axial rotation of celestial bodies
 SUBMITTED
 TO: Astrophysics and Space Science
 DATE: December 1971
 ACCEPTED: February 9, 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: 16 (1) 3-51, April 1972
 REPRINTS ORDERED: February 14, 1972
 REPRINTS RECEIVED: August 9, 1972
- 83 AUTHOR: J. A. Kong
 TITLE: Reflection coefficients for acoustic waves interacting with stratified media
 SUBMITTED
 TO: Journal of the Acoustical Society of America
 DATE: October 1971
 ACCEPTED: December 1971
 EXPECTED PUBLICATION DATE: May 1972
 PUBLISHED: 51, 1765-1767, 1972
 REPRINTS ORDERED: January 5, 1972
 REPRINTS RECEIVED: August 4, 1972
- 84 AUTHOR: Z. Kopal
 TITLE: Cosmic influences on the early history of the lunar surface
 SUBMITTED
 TO: Moon
 DATE: December 1971
 ACCEPTED: March 1972
 EXPECTED PUBLICATION DATE: May 1972
 PUBLISHED: 5, 200-205, 1972
 REPRINTS ORDERED: March 2, 1972
 REPRINTS RECEIVED: October 13, 1972
- 85 AUTHOR: Z. Kopal
 TITLE: Effects of viscous friction on the precession and nutation of celestial bodies
 SUBMITTED
 TO: Astrophysics and Space Science
 DATE: January 1972
 ACCEPTED: April 10, 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: 16, 347-371, 1972
 REPRINTS ORDERED: April 10, 1972
 REPRINTS RECEIVED: November 20, 1972
- 86 AUTHOR: Z. Kopal
 TITLE: Lunar Geophysics Conference, Proceedings
 SUBMITTED
 TO: Moon
 DATE: January 1972
 ACCEPTED: February 1972
 EXPECTED PUBLICATION DATE: Spring, 1973
 PUBLISHED: MOON 4, 3-249, 271-504; 5, 3-160 (1972)
 REPRINTS ORDERED: June 29, 1972
 REPRINTS RECEIVED: May 20, 1973

NO.

- 87 AUTHOR: J. D. Weete
 TITLE: Space Biology Conference, Proceedings, October 11-12, 1971, LSI,
 Houston, Texas.
 SUBMITTED:
 TO: Space Life Sciences
 DATE: February 1972
 ACCEPTED: February 29, 1972
 EXPECTED PUBLICATION DATE: May 1972
 PUBLISHED: Space Life Sciences 4, 3-138, 1973
 REPRINTS ORDERED: February 28, 1973
 REPRINTS RECEIVED: July 30, 1973
- 88 AUTHOR: Carolyn Watkins
 TITLE: "Lunar Science Conference Three" Revised abstracts

 SUBMITTED:
 TO: Published by the Lunar Science Institute
 DATE:
 ACCEPTED:
 EXPECTED PUBLICATION DATE:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED: Copies for sale only at \$15.00 each
- 89 AUTHOR: S. K. Runcorn
 TITLE: High pressure physics and planetary interiors
 conference, March 1-3, 1972, Proceedings
 SUBMITTED:
 TO: Physics of the Earth & Planetary Interiors
 DATE:
 ACCEPTED:
 EXPECTED PUBLICATION DATE:
 PUBLISHED: v.6, 1-209 (December 1972)
 REPRINTS ORDERED: September 13, 1972
 REPRINTS RECEIVED: April 3, 1973
- 90 AUTHOR: Kopal, Z.
 TITLE: Tidal evolution in close binary systems

 SUBMITTED:
 TO: Astrophysics and Space Science
 DATE: March 15, 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE: August 1972
 PUBLISHED: v.17, 161-185(1972)
 REPRINTS ORDERED: July 20, 1972
 REPRINTS RECEIVED: January 22, 1973

NO.

- 91 AUTHOR: Reid, A.M. et al, Jakes, P.
 TITLE: Major element compositions of lunar rocks as inferred
 from glass compositions in the lunar soils
 SUBMITTED:
 TO: Lunar Science Conference III, Proceedings
 DATE: May 1, 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: v.1, 363-378 (1972)
 REPRINTS ORDERED: May 3, 1972
 REPRINTS RECEIVED: November 27, 1973
- 92 AUTHOR: Compston, W., et al
 TITLE: Apollo 14 mineral ages and the thermal history of
 the Fra Mauro formation
 SUBMITTED: Lunar Science Conference III, Proceedings
 TO: May 1, 1972
 DATE:
 ACCEPTED:
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: v.2, 1487-1501 (1972)
 REPRINTS ORDERED: May 3, 1972
 REPRINTS RECIEVED: March 28, 1973
- 93 AUTHOR: Gose, W.A., et al
 TITLE: Magnetic properties of Apollo 14 breccias and their
 correlation with metamorphism
 SUBMITTED: Lunar Science Conference III, Proceedings
 TO:
 DATE: May 1, 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: v.3, 2387-2395 (1972)
 REPRINTS ORDERED: May 3, 1972
 REPRINTS RECEIVED:
- 94 AUTHOR: Pearce, G.W. et al.
 TITLE: Remanent magnetization of the lunar surface
 SUBMITTED:
 TO: Lunar Science Conference III, Proceedings
 DATE: May 1, 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: v.3, 2449-2464 (1972)
 REPRINTS ORDERED: May 3, 1972
 REPRINTS RECEIVED: February 23, 1973

NO.

- 95 AUTHOR: Criswell, D.
 TITLE: Lunar dust motion

 SUBMITTED:
 TO: Lunar Science Conference III, Proceedings
 DATE: May 1, 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: v.3, 2671-2680 (1972)
 REPRINTS ORDERED: May 3, 1972
 REPRINTS RECEIVED: February 27, 1973
- 96 AUTHOR: Beals, C.S.
 TITLE: Lava-filled craters and the thermal history of the
 lunar surfaces

 SUBMITTED:
 TO: Nature
 DATE: December 1971
 ACCEPTED: April 4, 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: Vol. 237, 226-227, May 26, 1972
 REPRINTS ORDERED: May 25, 1972
 REPRINTS RECEIVED: October 3, 1972
- 97 AUTHOR: Arkani-Hamed, J.
 TITLE: Stress differences in the moon as an evidence
 for a cold moon.

 SUBMITTED:
 TO: MOON
 DATE: May 1972
 ACCEPTED: May 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: MOON 6, 135-163 (1973)
 REPRINTS ORDERED: July 19, 1972
 REPRINTS RECEIVED: April 16, 1973
- 98 AUTHOR: Morganstern, R.E.
 TITLE: Curved space cosmological bounds on the time-variation of G

 SUBMITTED:
 TO: NATURE PHYSICAL SCIENCE
 DATE: February 1972
 ACCEPTED: May 11, 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: Vol. 237, 70-71, May 29, 1972
 REPRINTS ORDERED: June 13, 1972
 REPRINTS RECEIVED: October 10, 1972

NO.

99 AUTHOR: Arkani-Hamed, Jafar
 TITLE: Viscosity of the moon, Part I

SUBMITTED:

TO: MOON

DATE: May 1972

ACCEPTED: June 9, 1972

EXPECTED PUBLICATION DATE:

PUBLISHED: MOON 6, 100-111 (1973)

REPRINTS ORDERED: November 16, 1972

REPRINTS RECEIVED: April 17, 1973

100 AUTHOR: Kopal, Zdenek
 TITLE: Tidal evolution in close binary systems, II

SUBMITTED: Astrophysics and Space Science

TO:

DATE: June 1972

ACCEPTED:

EXPECTED PUBLICATION DATE:

PUBLISHED: Astrophysics & Space Science 18, 287-305 (1972)

REPRINTS ORDERED: October 13, 1972

REPRINTS RECEIVED: April 24, 1973

101 AUTHOR: Lindsay, John F.
 TITLE: Sedimentology of clastic rocks returned from the moon
 by Apollo 15

SUBMITTED:

TO: Geological Society of America. Bulletin

DATE: December 1971

ACCEPTED: May 17, 1972

EXPECTED PUBLICATION DATE:

PUBLISHED: 83, 2957-2970, 1972

REPRINTS ORDERED: June 14, 1972

REPRINTS RECEIVED: December 4, 1972

102 AUTHOR: Criswell, D.R.
 TITLE: Magnetospheric control of Pc 1 Micropulsation

SUBMITTED:

TO: Proceedings of the Sub-LF Downlink Satellite Communications
 Conference, June 6-9, 1972, Naval Research Laboratory

DATE:

ACCEPTED: June 15, 1972

EXPECTED PUBLICATION DATE:

PUBLISHED:

REPRINTS ORDERED:

REPRINTS RECEIVED:

NO.

- 103 AUTHOR: Morganstern, R.E.
 TITLE: Observational constraints imposed by Brans-Dicke cosmologies
- SUBMITTED
 TO: Physical Review D
 DATE: April 1972
 ACCEPTED: June 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: Physical Review D 7, 1570-1579, 15 Mar 1973
 REPRINTS ORDERED: April 19, 1972
 REPRINTS RECEIVED: June 25, 1973
- 104 AUTHOR: Lindsay, John F.
 TITLE: Development of soil on the lunar surface
- SUBMITTED
 TO: J. Sedimentary Petrology
 DATE: January 1972
 ACCEPTED: June 15, 1972
 EXPECTED PUBLICATION DATE: December 1972
 PUBLISHED: v.42, 876-878 (1972)
 REPRINTS ORDERED: September 19, 1972
 REPRINTS RECEIVED: May 10, 1973
- 105 AUTHOR: Pearce, G.W., Williams, Richard J., and McKay, David S.
 TITLE: Magnetic properties and morphology of iron produced by
 subsolidus reduction of synthetic Apollo 11 glasses
- SUBMITTED
 TO: Earth & Planetary Science Letters
 DATE: June 1972
 ACCEPTED: July 20, 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED: v.17, 95-104 (1972)
 REPRINTS ORDERED: August 8, 1972
 REPRINTS RECEIVED: February 9, 1973
- 106 AUTHOR: Kong, J.A.
 TITLE: Electromagnetic fields due to dipole antennas
 over stratified anisotropic media
- SUBMITTED
 TO: Geophysics
 DATE: June 1972
 ACCEPTED: June 1972
 EXPECTED PUBLICATION DATE: December 1972
 PUBLISHED: v.37, 985-996 (1972)
 REPRINTS ORDERED: September 20, 1972
 REPRINTS RECEIVED: February 12, 1973
- 107 AUTHOR: Eglinton, G.; Maxwell, J.R.; Pillinger, C.T.
 TITLE: Carbon chemistry of the moon
- SUBMITTED
 TO: Scientific American
 DATE: April 1972
 ACCEPTED: August 1972
 EXPECTED PUBLICATION DATE: October 1972
 PUBLISHED: 227, (4) 80-91, October 1972
 REPRINTS ORDERED:
 REPRINTS RECEIVED:

NO.

- 108 AUTHOR: Brett, Robin
 TITLE: Lunar Science
- SUBMITTED
 TO: Essays in Physics, v. ____ Academic Press
 DATE:
 ACCEPTED:
 EXPECTED PUBLICATION DATE:
 PUBLISHED:
 REPRINTS ORDERED: N.A. -- Book; probably no reprints will be available
 REPRINTS RECEIVED:
- 109 AUTHOR: Ronca, Luciano B.
 TITLE: Filling of the lunar mare basins
- SUBMITTED
 TO: The Moon
 DATE: August 10, 1972
 ACCEPTED: August 23, 1972
 EXPECTED PUBLICATION DATE: April 1973
 PUBLISHED: MOON 7, 239-248, 1973
 REPRINTS ORDERED: December 26, 1972
 REPRINTS RECEIVED: June 7, 1973
- 110 AUTHOR: Reid, Arch M.; Warner, Jeff; Ridley, W.I.; Brown, R.W.
 TITLE: Major element composition of glasses in three Apollo 15 soils
- SUBMITTED
 TO: Meteoritics
 DATE: September 1972
 ACCEPTED:
 EXPECTED PUBLICATION DATE:
 PUBLISHED: 7 (3) 395-415, 1972
 REPRINTS ORDERED: September 21, 1972
 REPRINTS RECEIVED: October 30, 1972
- 111 AUTHOR: Shorthill, Richard W.
 TITLE: Infrared atlas charts of the eclipsed moon
- SUBMITTED
 TO: The Moon
 DATE: September 1972
 ACCEPTED: September 1972
 EXPECTED PUBLICATION DATE: Spring 1973
 PUBLISHED: MOON 7, 22-45, 1973
 REPRINTS ORDERED: January 23, 1973
 REPRINTS RECEIVED: June 15, 1973
- 112 AUTHOR: Criswell, David R
 TITLE: Photoelectrons and lunar limb shocks
- SUBMITTED
 TO: Symposium on Photon and Particle Interactions with
 DATE: Surfaces in Space, September 1972
 ACCEPTED: September 1972
 EXPECTED PUBLICATION DATE:
 PUBLISHED:
 REPRINTS ORDERED: May 10, 1973

NO.

- 113 AUTHOR: Criswell, David R.
 TITLE: Horizon glow and the motion of lunar dust
- SUBMITTED
 To: Symposium on Photon and Particle Interactions with Surfaces
 Date: in Space, September 1972
 ACCEPTED: September 1972
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED: June 28, 1973
 REPRINTS RECEIVED:
- 114 AUTHOR: Laseter, J. L. and Weete, J. D.
 TITLE: Volatile terpenoids from aeciospores of Cronartium
 Fusiforme
- SUBMITTED
 To: Phytochemistry
 Date: June 1972
 ACCEPTED: September 23, 1972
 Expected publication date:
 PUBLISHED: v.12, 387-390 (1973)
 REPRINTS ORDERED: October 16, 1972
 REPRINTS RECEIVED: March 5, 1973
- 115 AUTHOR Laseter, J.L., Lawler, G.W., Walkinshaw, C.H., Weete, J.D.
 TITLE: Fatty acids of slash pine tissues
- SUBMITTED:
 To: Phytochemistry
 Date: July 1972
 ACCEPTED: September 6, 1972
 Expected publication date: 6-8 months
 PUBLISHED: Phytochemistry 12, 817-821, 1973
 REPRINTS ORDERED: January 17, 1973
 REPRINTS RECEIVED: April 24, 1973
- 116 AUTHOR: Arkani-Hamed, Jafar
 TITLE: Viscosity of the Moon, Part II: During Mare Formation
- SUBMITTED
 To: Moon
 Date: July 6, 1972
 ACCEPTED: October 1972
 Expected publication date:
 PUBLISHED: MOON 6, 112-124, 1973
 REPRINTS ORDERED: December 12, 1972
 REPRINTS RECEIVED: April 23, 1973

NO.

- 117 AUTHOR: Arkani-Hamed, Jafar
 TITLE: Density and stress distribution in the moon
- SUBMITTED
 To: Moon
 Date: October 5, 1972
 ACCEPTED: October 16, 1972
 Expected publication date: April 1973
 PUBLISHED: MOON 7, 84-126, 1973
 REPRINTS ORDERED: January 3, 1973
 REPRINTS RECEIVED: June 20, 1973
- 118 AUTHOR: Warner, J., Reid, A.M., Ridley, W.I., Brown, R.W.
 TITLE: Major element composition of Luna 20 glasses
- SUBMITTED
 To: Earth and Planetary Science Letters
 Date: October 3, 1972
 ACCEPTED: October 26, 1972
 Expected publication date: December 1972
 PUBLISHED: v.17, 7-12 (1972)
 REPRINTS ORDERED: October 30, 1972
 REPRINTS RECEIVED: March 22, 1973
- 119 AUTHOR: Ridley, W.I., Reid, A.M., Warner, J., Brown, R.W.
 TITLE: Apollo 15 green glasses
- SUBMITTED
 To: Physics of Earth and Planetary Interiors
 Date: September 1972
 ACCEPTED: September 1972
 Expected publication date:
 PUBLISHED: Physics of Earth & Planetary Interiors 7, 133-136, 1973
 REPRINTS ORDERED April 3, 1973
 REPRINTS RECEIVED: August 20, 1973
- 120 AUTHOR: Lindsay, J.F.
 TITLE: Ventifact evolution in Wright Valley, Antarctica
- SUBMITTED:
 To: Geological Society of America. Bulletin
 Date: August 1972
 ACCEPTED: October 30, 1972
 Expected publication date
 PUBLISHED: GSA Bulletin 84, 1791-1798, 1973
 REPRINTS ORDERED: (through LaTrobe University)
 REPRINTS RECEIVED: July 25, 1973

NO.

- 121 AUTHOR: Brinkmann, R. T.
 TITLE: Jovian satellite-satellite eclipses/occultations
- SUBMITTED
 To: Icarus
 Date: May 1972
 ACCEPTED: November 6, 1972
 Expected publication date
 PUBLISHED: Icarus 19, 15-29, 1973
 REPRINTS ORDERED: March 1, 1973
 REPRINTS RECEIVED: July 16, 1973
- 122 AUTHOR: Lindsay, J. F.
 TITLE: Reversing Barchan dunes in lower Victoria Valley, Antarctica
- SUBMITTED:
 To: Geological Society of America. Bulletin
 Date: August 9, 1972
 ACCEPTED: November 7, 1972
 Expected publication date:
 PUBLISHED: GSA Bulletin 84, 1799-1806, 1973
 REPRINTS ORDERED: (through LaTrobe University)
 REPRINTS RECEIVED: July 25, 1973
- 123 AUTHOR: Ridley, W. I., Baker, I.
 TITLE: Petrochemistry of a unique cordierite-bearing lava from
 St. Helena Island, South Atlantic
- SUBMITTED
 To: American Mineralogist
 Date: October 1972
 ACCEPTED: November 20, 1972
 Expected publication date:
 PUBLISHED: American Mineralogist 58, 813-818, 1973.
 REPRINTS ORDERED: August 10, 1973
 REPRINTS RECEIVED: November 27, 1973
- 124 AUTHOR: Simonds, C.H.
 TITLE: Sintering and hot pressing of Fra Mauro composition glass
 and the lithification of lunar breccias
- SUBMITTED:
 To: American Journal of Science
 Date: August 1972
 ACCEPTED: November 1972
 Expected publication date:
 PUBLISHED: American J. of Science 273, 428-439, 1973
 REPRINTS ORDERED: February 28, 1973
 REPRINTS RECEIVED: May 29, 1973

NO.

- 125 AUTHOR: Strangway, D.W., Gose, W.A., Pearce, G.W., Carnes, J.G.
 TITLE: Magnetism and the history of the moon

 SUBMITTED:
 To: Magnetism and Magnetic Materials Conference, 18th, AIP
 Date: November 27, 1972
 ACCEPTED: November 1972
 Expected publication date: Spring 1973
 PUBLISHED: AIP Conference Proceedings #10, pt. 2 1178-1196, 1973
 REPRINTS ORDERED:
 REPRINTS RECEIVED: None available
- 126 AUTHOR: Reid, A.M., Ridley, W.I., Harmon, R. S., Jakes, P.
 TITLE: Major element chemistry of glasses in Apollo 14 soil 14156

 SUBMITTED:
 To: Geochimica et Cosmochimica Acta
 Date: April 1972
 ACCEPTED: November 1972
 Expected publication date:
 PUBLISHED: GCA 37, 695-699, 1973
 REPRINTS ORDERED:
 REPRINTS RECEIVED: April 24, 1973
- 127 AUTHOR: Gose, W.A., Strangway, D.W., Pearce, G.W.
 TITLE: Determination of the intensity of the ancient lunar
 magnetic field

 SUBMITTED:
 To: Moon
 Date: November 1972
 ACCEPTED: December 1972
 Expected publication date: April 1973
 PUBLISHED: MOON 7, 196-201, 1973.
 REPRINTS ORDERED: January 4, 1973
 REPRINTS RECEIVED: July 16, 1973
- 128 AUTHOR: Weete, J.D., Lawler, G.C., Laseter, J.L.
 TITLE: Total lipid and sterol components of Rhizopus Arrhizus:
 Identification and metabolism

 SUBMITTED:
 To: Archives of Biochemistry and Biophysics
 Date: October 1972
 ACCEPTED: December 1972
 Expected publication date:
 PUBLISHED: Archives of Biochem & Biophys 155, 411-419, 1973
 REPRINTS ORDERED: March 1, 1973
 REPRINTS RECEIVED: May 15, 1973

NO.

129 AUTHOR: Criswell, D.R.
 TITLE: Photoelectrons and solar wind/lunar limb interaction

SUBMITTED:

 To: Moon
 Date: November 13, 1972
ACCEPTED: December 20, 1972
 Expected publication date: April 1973
PUBLISHED: MOON 7, 202-238, 1973
REPRINTS ORDERED: December 22, 1972
REPRINTS RECEIVED: June 20, 1973

130 AUTHOR: Ridley, W.I.
 TITLE: Apollo: the scientific payoff

SUBMITTED

 To: New Scientist
 Date: December 1972
ACCEPTED: December 1972
 Expected publication date:
PUBLISHED: 56, 646-649, December 14, 1972
REPRINTS ORDERED: January 3, 1973
REPRINTS RECEIVED: August 22, 1973

131 AUTHOR: Reid, A.M., Warner, J.L., Ridley, W.I., Brown, R.W.
 TITLE: Luna 20 soil: abundance and composition of phases in
 the 45-125 micron fraction

SUBMITTED

 To: Geochimica & Cosmochimica Acta
 Date:
ACCEPTED: January 1973
 Expected publication date:
PUBLISHED: GCA 37, 1011-1030, 1973
REPRINTS ORDERED: March 6, 1973
REPRINTS RECEIVED: June 8, 1973

132 AUTHOR: Arkani-Hamed, J.
 TITLE: On the thermal history of the moon

SUBMITTED

 To: The Moon
 Date: December 19, 1972
ACCEPTED: January 1973
 Expected publication date:
PUBLISHED: The MOON 6, 380-383, 1973
REPRINTS ORDERED: April 13, 1973
REPRINTS RECEIVED: November 26, 1973

NO.

- 133 AUTHOR: Arkani-Hamed, J.
 TITLE: Effect of a giant impact on the thermal evolution
 of the moon
 SUBMITTED:
 TO: The Moon
 DATE: January 1973
 ACCEPTED: January 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED: April 2, 1973
 REPRINTS RECEIVED:
- 134 AUTHOR: Fredriksson, K., Noonan, A., Nelen, J.
 TITLE: Meteoritic, lunar and lunar impact chondrules
 SUBMITTED:
 TO: The Moon
 DATE: December 4, 1972
 ACCEPTED: January 1973
 Expected publication date: April 1973
 PUBLISHED: MOON 7, 475-482, 1973
 REPRINTS ORDERED: February 21, 1973
 REPRINTS RECEIVED: September 20, 1973
- 135 AUTHOR: Moutsoulas, M.
 TITLE: COSPAR-IAU-LSI Colloquium on lunar dynamics and
 observational coordinate systems; abstracts
 SUBMITTED
 TO:
 DATE:
 ACCEPTED:
 Expected publication date:
 PUBLISHED: Separate, published by LSI
 REPRINTS ORDERED: n.a.
 REPRINTS RECEIVED: Limited distribution
- 136 AUTHOR: Laseter, J.L., Evans, R., Walkinshaw, C.H., Weete, J.D.
 TITLE: Gas chromatography-mass spectrometry study of sterols from
 slash pine tissues
 SUBMITTED:
 TO: Phytochemistry
 DATE: November 1972
 ACCEPTED: February 1973
 Expected publication date
 PUBLISHED : Phytochemistry 12, 2255-2258, 1973.
 REPRINTS ORDERED: May 30, 1973
 REPRINTS RECEIVED: September 24, 1973

NO.

- 137 AUTHOR: Ridley, W.I., Hubbard, N.J., Rhodes, J.M., Wiesmann, H., Bansal, B.
 TITLE: Petrology of lunar breccia 15445 and petrogenetic implications
- SUBMITTED:
 TO: Journal of Geology
 DATE: March 1973
 ACCEPTED: March 1973
 Expected publication date: July 1973
 PUBLISHED:
 REPRINTS ORDERED: September 21, 1973
 REPRINTS RECEIVED:
- 138 AUTHOR: Moutsoulas, Michael
 TITLE: Selenographic Control
- SUBMITTED:
 TO: THE MOON
 DATE: May 1973
 ACCEPTED: June 1973
 Expected publication date:
 PUBLISHED: The MOON 8, 461-468, 1973
 REPRINTS ORDERED: August 14, 1973
 REPRINTS RECEIVED:
- 139 AUTHOR: Weete, John D
 TITLE: Sterols of the fungi; distribution and biosynthesis
- SUBMITTED:
 TO: Phytochemistry
 DATE: Sept. 1972
 ACCEPTED: May 1973
 Expected publication date:
 PUBLISHED: Phytochemistry 12, 1843-1864, 1973
 REPRINTS ORDERED: June 14, 1973
 REPRINTS RECEIVED: September 17, 1973
- 140 AUTHOR: Arkani-Hamed, J.
 TITLE: Lunar mascons as consequences of giant impacts
- SUBMITTED:
 TO: The Moon
 DATE: May 1973
 ACCEPTED: June 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:

NO.

- 141 AUTHOR: Gose, W. A.
 TITLE: Time dependent magnetization of fine-grained iron in
 lunar breccias
 SUBMITTED:
 TO: Earth & Planetary Science Letters
 DATE: February 1972
 ACCEPTED: June 18, 1973
 Expected publication date:
 PUBLISHED: E&PSL 20, 100-106, 1973
 REPRINTS ORDERED: July 26, 1973
 REPRINTS RECEIVED: December 14, 1973
- 142 AUTHOR: Ridley, W.I., Rhodes, J.M., Reid, A., Jakes, P., Shih, C., Bass, N.
 TITLE: Geology and petrology of basalts from Leg 6 of the Deep
 Sea Drilling Project
 SUBMITTED:
 TO: Journal of Petrology
 DATE: September 1972
 ACCEPTED: June 21, 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 143 AUTHOR: Dunlop, D.J.
 TITLE: Theory of the magnetic viscosity of lunar and terrestrial
 rocks
 SUBMITTED:
 TO: Reviews of Geophysics and Space Physics
 DATE: April 1973
 ACCEPTED: July 13, 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED: October 12, 1973
 REPRINTS RECEIVED:
- 144 AUTHOR: Lindsay, John F.
 TITLE: Evolution of lunar soil grain-size and shape parameters
 SUBMITTED:
 TO: Proceedings of the 4th Lunar Science Conference
 DATE: June 1973
 ACCEPTED: July 1973
 Expected publication date: December 1973
 PUBLISHED: Proceedings v.1, 215-224, 1973
 REPRINTS ORDERED: December 5, 1973
 REPRINTS RECEIVED:

NO.

- 145 AUTHOR: Ridley, W.I., Reid, A.M., Warner, J.L., Brown, R.W., Gooley, R.
TITLE: Donaldson, C.
Glass compositions in Apollo 16 soils 60501 and 61221
SUBMITTED:
TO: Proceedings of the 4th Lunar Science Conference
DATE: June 1973
ACCEPTED: July 1973
Expected publication date: December 1973
PUBLISHED: Proceedings v.1, 309-321, 1973
REPRINTS ORDERED: December 5, 1973
REPRINTS RECEIVED:
- 146 AUTHOR: Simonds, C.H., Warner, J.L., Phinney, W.C.
TITLE: Petrology of Apollo 16 poikilitic rocks
SUBMITTED:
TO: Proceedings of the 4th Lunar Science Conference
DATE: June 1973
ACCEPTED: July 1973
Expected publication date: December 1973
PUBLISHED: Proceedings, v.1, 613-632, 1973.
REPRINTS ORDERED: December 5, 1973
REPRINTS RECEIVED:
- 147 AUTHOR: Warner, J.L., Simonds, C.H., Phinney, W.C.
TITLE: Apollo 16 rocks, classification and petrogenetic model
SUBMITTED:
TO: Proceedings of the 4th Lunar Science Conference
DATE: June 1973
ACCEPTED: July 1973
Expected publication date: December 1973
PUBLISHED: Proceedings v.1, 481-504, 1973
REPRINTS ORDERED: December 5, 1973
REPRINTS RECEIVED:
- 148 AUTHOR: Dunlop, D.J., Gose, W.A., Pearce, G.W., Strangway, D.W.
TITLE: Magnetic properties and granulometry of metallic iron in
lunar breccia 14313
SUBMITTED:
TO: Proceedings of the 4th Lunar Science Conference
DATE: June 1973
ACCEPTED: July 1973
Expected publication date: December 1973
PUBLISHED: Proceedings, v.3, 2977-2990, 1973
REPRINTS ORDERED: December 5, 1973
REPRINTS RECEIVED:

NO.

- 149 AUTHOR: Arkani-Hamed, Jafar
 TITLE: On the Formation of Lunar Mascons

 SUBMITTED
 To: Lunar Science IV Proceedings
 Date: June 1973
 ACCEPTED: July 1973
 Expected publication date: December 1973
 PUBLISHED: Proceedings v.3, 2673-2684, 1973
 REPRINTS ORDERED: December 5, 1973
 REPRINTS RECEIVED:
- 150 AUTHOR: Neukum, Gerhard
 TITLE: Crater Populations on Lunar Rocks

 SUBMITTED
 To: Lunar Science IV Proceedings
 Date: June 1973
 ACCEPTED: July 1973
 Expected publication date: December 1973
 PUBLISHED: Proceedings v.3, 3255-3276, 1973
 REPRINTS ORDERED: December 5, 1973
 REPRINTS RECEIVED:
- 151 AUTHOR: Manka, Robert
 TITLE: Lunar Ion Energy Spectra and Surface Potential

 SUBMITTED
 To: Lunar Science IV Proceedings
 Date: June 1973
 ACCEPTED: July 1973
 Expected publication date: December 1973
 PUBLISHED: Proceedings v.3, 2897-2908, 1973
 REPRINTS ORDERED: December 5, 1973
 REPRINTS RECEIVED:
- 152 AUTHOR: Pearce, G. W., Gose, W. A., Strangway, D. W.
 TITLE: Magnetic Studies on Apollo 15 and 16 Lunar Samples

 SUBMITTED
 To: Lunar Science IV Proceedings
 Date: June 1973
 ACCEPTED: July 1973
 Expected publication date: December 1973
 PUBLISHED: Proceedings v.3, 3045-3076
 REPRINTS ORDERED: December 5, 1973
 REPRINTS RECEIVED:

NO.

153 AUTHOR: Apollo Soil Survey
 TITLE: Phase chemistry of Apollo 14 soil sample 14259

 SUBMITTED:
 To: Modern Geology
 Date:
 ACCEPTED: August 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:

154 AUTHOR: Ridley, W.I., Watkins, N.D., MacFarlane, D.J.
 TITLE: Oceanic islands: Azores

 SUBMITTED
 To: Plenum Pub. Co. as chapter in OCEAN BASINS AND MARGINS
 Date:
 ACCEPTED: August 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED October 16, 1973
 REPRINTS RECEIVED:

155 AUTHOR: Rehfuss, D.E., Larson, H.K.
 TITLE: Cross-hatching at Silver Spur

 SUBMITTED:
 To: NATURE
 Date: April 1973
 ACCEPTED: September 1973
 Expected publication date:
 PUBLISHED: Nature Physical Science 245, 56-57, 1973
 REPRINTS ORDERED: September 26, 1973
 REPRINTS RECEIVED: January 2, 1974

156 AUTHOR: Ridley, W.I., Reid, A.M., Brett, P.R.
 TITLE: Lunar Petrology Conference Summary

 SUBMITTED
 To: EOS
 Date:
 ACCEPTED: October 1973
 Expected publication date:
 PUBLISHED: EOS 55, 4-8, 1974
 REPRINTS ORDERED: November 20, 1974
 REPRINTS RECEIVED:

NO.

157 AUTHOR: Smyth, J.R.
 TITLE: Experimental study on the polymorphism of enstatite

SUBMITTED

 To: American Mineralogist
ACCEPTED: October 12, 1973
 Expected publication date:
PUBLISHED:
REPRINTS ORDERED:
REPRINTS RECEIVED;

158 AUTHOR: Middlehurst, B.
 TITLE: Moonquakes and transient events

SUBMITTED

 To: Bulletin of the Atomic Scientists
 Date: June 1973
ACCEPTED: October 1973
 Expected publication date:
PUBLISHED: Bulletin of the Atomic Scientists 29, 35-42, December 1973
REPRINTS ORDERED: October 24, 1973
REPRINTS RECEIVED:

159 AUTHOR: Middlehurst, B., Chapman, W.B., Frisillo, A.L.
 TITLE: Moonquake controlling forces and tides

SUBMITTED

 To: Icarus
 Date: May 1973
ACCEPTED: November 1973
 Expected publication date:
PUBLISHED:
REPRINTS ORDERED:
REPRINTS RECEIVED:

160 AUTHOR: Strangway, D.W., Gose, W.A., Pearce, G.W., McConnell, R.K.
 TITLE: Lunar magnetic anomalies and the Cayley formation

SUBMITTED

 To: Nature Physical Science
 Date: October 1973
ACCEPTED: November 1973
 Expected publication date:
PUBLISHED: Nature physical science 246, 112-115, 1973
REPRINTS ORDERED: November 19, 1973
REPRINTS RECEIVED:

NO.

- 161 AUTHOR: Laseter, J.L., Weete, J.D., Walkinshaw, C.H.
 TITLE: Lipid composition of slash pine tissue cultures grown with
 lunar and earth soils
 SUBMITTED
 To: Space Life Sciences
 Date: October 1973
 ACCEPTED: November 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED: November 9, 1973 (Telcon to JLL)
 REPRINTS RECEIVED:
- 162 AUTHOR: Volborth, A.
 TITLE: Oxygen in the moon's crust; a review
 SUBMITTED
 To: Bulletin of the Atomic Scientists
 Date: April 1973
 ACCEPTED: November 1973
 Expected publication date: February 1974
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 163 AUTHOR: Rennilson, J.J., Criswell, D.R.
 TITLE: Surveyor observation of lunar horizon glow
 SUBMITTED
 To: The Moon
 Date:
 ACCEPTED: November 1973
 Expected publication date: Spring 1974
 PUBLISHED:
 REPRINTS ORDERED: November 16, 1973
 REPRINTS RECEIVED:
- 164 AUTHOR: Pearce, G.W., Simonds, C.H.
 TITLE: Magnetic properties and mode of formation of Apollo
 16 samples
 SUBMITTED
 To: Journal of Geophysical Research
 Date:
 ACCEPTED: November 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:

NO.

- 165 AUTHOR: Strangway, D.W., editor
 TITLE: Geophysical and Geochemical Exploration of the Moon
 and Planets; Conference Proceedings, January 1973
 SUBMITTED
 To: The Moon
 Date:
 ACCEPTED:
 Expected publication date: v.9/1-2
 PUBLISHED:
 REPRINTS ORDERED: January 3, 1974
 REPRINTS RECEIVED:
- 166 AUTHOR: Jakes, P., Taylor, S.R.
 TITLE: Excess Europium content in prevambrian sedimentary rocks
 and continental evolution
 SUBMITTED
 To: Geochimica et cosmochimica acta
 Date:
 ACCEPTED: December 1973
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 167 AUTHOR: Rehfuss, D.E.
 TITLE: Hypervelocity impact heating of porous aluminum
 SUBMITTED
 To: Journal of Applied Physics
 Date: August 1973
 ACCEPTED: January 1974
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED:
 REPRINTS RECEIVED:
- 168 AUTHOR: Rehfuss, D.E.
 TITLE: Glass production differences for equal-diameter
 impact craters
 SUBMITTED
 To: The Moon
 Date: October 1973
 ACCEPTED: January 1974
 Expected publication date:
 PUBLISHED:
 REPRINTS ORDERED: January 14, 1973
 REPRINTS RECEIVED: